DATA QUALITY OBJECTIVE NO. 1
DEEPWATER HORIZON INCIDENT
MEDIA OF CONCERN: NEAR SHORE and OFF SHORE WATER

STEP 1. STATE THE PROBLEM	
Are Special Monitoring of Applied Response Technologies (SMART) water samples collected from the near and off shore water pathway affected by contamination due to chemical constituents of dispersant compounds or crude oil?	
STEP 2. IDENTIFY THE DECISION	
Are the concentrations of chemicals of concern in the water represented by the SMART water samples at concentrations that may cause negative short and/or long-term impacts on the aquatic environment?	
IDENTIFY THE ALTERNATIVE ACTIONS THAT MAY BE TAKEN BASED ON THE DECISIONS.	• If any contaminant exceeds the screening level concentrations in water samples analyzed, the near and off shore water represented by that sample will be considered contaminated and will require additional attention. • If no contaminants exceed the screening level concentrations in water samples analyzed, the near and off shore water represented by that sample will not require additional attention.
STEP 3. IDENTIFY INPUTS TO THE DECISION	
IDENTIFY THE INFORMATIONAL INPUTS NEEDED TO RESOLVE A DECISION.	• Contaminant concentrations in near and off shore SMART water samples collected from the assessment boundaries shown on Figure 3-1 and 3-2.
IDENTIFY THE SOURCES FOR EACH INFORMATIONAL INPUT AND LIST THE INPUTS THAT ARE OBTAINED THROUGH ENVIRONMENTAL MEASUREMENTS.	• SMART water samples collected from 70 sample stations near shore and to be determined off shore locations along the Louisiana, Mississippi, Alabama, and Florida coast line. • Tier I, Tier II, and Tier III monitoring and sampling will be conducted incorporating visual monitoring, real-time water column monitoring and collection of grab water samples. Flourometric measurements will be used to make measurements of the dispersed oil plume. On board and/or laboratory spectrofluormeters will be used to provide quantitative information on the extend of oil dispersion.
BASIS FOR THE CONTAMINANT SPECIFIC ACTION LEVELS.	The site specific screening levels for water are based on EPA Saltwater Aquatic Life Criteria- chronic (Table 4-2)
IDENTIFY POTENTIAL SAMPLING TECHNIQUES AND APPROPRIATE ANALYTICAL METHODS.	SMART water grab samples collected using Kemmerer or rosette (Niskin bottle) samplers analyzed for: SVOCs, COD, BOD, DO, Total Nitrogen, and chlorophyll using EPA Test Method 8270C; Std Methods 410.3, 5210B; 360.1; and E353.2 and E445.0.

STEP 4. DEFINE THE BOUNDARIES OF THE STUDY	
DEFINE THE DOMAIN OR GEOGRAPHIC AREA WITHIN WHICH ALL DECISIONS MUST APPLY.	The boundaries for the Deepwater Horizon Incident SMART water and air sampling are shown on Figures 3-1 and 3-2.
SPECIFY THE CHARACTERISTICS THAT DEFINE THE POPULATION OF INTEREST.	Contaminant concentrations and fluorometer measurements in water at the sample locations.
DEFINE THE SCALE OF DECISION MAKING.	The scale of decision will be for the site activities occurring at the time of the sample collection.
DETERMINE THE TIME FRAME TO WHICH THE DATA APPLY.	The analytical data will apply until the water represented by the sample receives appropriate response action or future samples and analysis replace this data.
DETERMINE WHEN TO COLLECT DATA.	Near shore SMART water samples will be collected during the field sampling activities at the 70 locations along the Louisiana to Florida coastline. The off shore samples will be collected based on the Tier I, Tier II, and Tier III criteria outlined in Section 3.2.1.
IDENTIFY PRACTICAL CONSTRAINTS ON DATA COLLECTION.	• Inclement weather. • Access not attainable.
STEP 5. DEVELOP A DECISION RULE	
SPECIFY THE PARAMETER THAT CHARACTERIZES THE POPULATION OF INTEREST.	The sample concentrations at each sample location will be compared to the screening levels presented in Table 4-2 and Appendix F.
SPECIFY THE ACTION LEVEL FOR THE DECISION.	The site specific screening levels for water are based on EPA Saltwater Aquatic Life Criteria- chronic (Table 4-2)
DEVELOP A DECISION RULE.	FOR NEAR SHORE WATER SAMPLES: If any result in a SMART water sample is above the EPA Saltwater Aquatic Life Criteria then the water represented by that sample will require additional attention, otherwise the water does not require additional attention. Additional attention could result in additional sampling, remedial measures taken to disperse the crude oil and chemical dispersant, or other action deemed necessary by EPA. FOR OFF SHORE WATER SAMPLES: If any result of the Tier I and Tier II monitoring and real-time water column monitoring indicate a grab sample using a Kemmerer or rosette(Niskin bottle) sampler is required then a sample will be collected for further onboard or fixed laboratory analyses.

STEP 6. SPECIFY LIMITS ON DECISION ERRORS	
DETERMINE THE POSSIBLE RANGE OF THE PARAMETER OF INTEREST.	Contaminant concentrations may range from 0 µg/L water to greater than the EPA Screening Levels.
DEFINE BOTH TYPES OF DECISION ERRORS AND IDENTIFY THE POTENTIAL CONSEQUENCES OF EACH.	Type I Error: Deciding that the specified area represented by the water sample does not exceed the screening levels when, in truth, the water concentration of the contaminant exceeds the EPA Saltwater Aquatic Life Criteria The consequence of this decision error is that contaminated water will remain in place, possibly endangering human health and the environment. This decision error is more severe. Type II Error: Deciding that the specified area represented by the water sample does exceed the screening levels when, in truth, it does not. The consequences of this decision error are that remediation of the water will continue and unnecessary costs will be incurred.
ESTABLISH THE TRUE STATE OF NATURE FOR EACH DECISION RULE.	The true state of nature when the water is decided to be below the screening levels when in fact, it is not below the screening levels, is that the water does need remedial action. The true state of nature when the water is decided to be above the EPA Saltwater Aquatic Life Criteria when in fact, it is not above the screening criteria, is that the water does not need remedial action.
DEFINE THE TRUE STATE OF NATURE FOR THE MORE SEVERE DECISION ERROR AS THE BASELINE CONDITION OR THE NULL HYPOTHESIS (H_o) AND DEFINE THE TRUE STATE FOR THE LESS SEVERE DECISION ERROR AS THE ALTERNATIVE HYPOTHESIS (H_a).	Ho: The water represented by the sample is above above the EPA Saltwater Aquatic Life Criteria Ha: The water represented by the sample is below above the EPA Saltwater Aquatic Life Criteria.
ASSIGN THE TERMS “FALSE POSITIVE” AND “FALSE NEGATIVE” TO THE PROPER DECISION ERRORS.	• False Positive Error = Type I • False Negative Error = Type II
ASSIGN PROBABILITY VALUES TO POINTS ABOVE AND BELOW THE ACTION LEVEL THAT REFLECT THE ACCEPTABLE PROBABILITY FOR THE OCCURRENCES OF DECISION ERRORS.	The assignment of probability values is not applicable to these DQOs because a nonprobablistic (judgment-based) process has been specified.

STEP 7. OPTIMIZE THE DESIGN	
REVIEW THE DQOs.	The near shore water sample locations were selected based on Visual Sampling Plan (VSP) software and the offshore water sample locations will be selected based on the Tier I, Tier II and Tier III criteria presented in Section 3.2.1.
DEVELOP GENERAL SAMPLING AND ANALYSIS DESIGN. A total of 70 near shore sample locations have been selected based on VSP along the Louisiana, Mississippi, Alabama and Florida coast line. Grab water samples will be collected at each of these locations for laboratory analytical testing for SVOCs, COD, BOD, DO, Total Nitrogen, and chlorophyll using EPA Test Method 8270C; Std Methods 410.3, 5210B; 360.1; and E353.2 and E445.0. Additionally eco toxicity testing will also be performed on the grab samples. Off shore samples collection will be based on Tier I and Tier II visual observation and fluorometer monitoring. Grab samples (Tier III) may be collected for additional on board or laboratory testing.	

DATA QUALITY OBJECTIVE NO. 2
DEEPWATER HORIZON INCIDENT
MEDIA OF CONCERN: AIR

STEP 1. STATE THE PROBLEM	
Are Special Monitoring of Applied Response Technologies (SMART) water samples collected from the near and off shore water pathway affected by contamination due to chemical constituents of dispersant compounds or crude oil?	
STEP 2. IDENTIFY THE DECISION	
Are the concentrations of chemicals of concern in the water represented by the SMART water samples at concentrations that may cause negative short and/or long-term impacts on the aquatic environment?	
IDENTIFY THE ALTERNATIVE ACTIONS THAT MAY BE TAKEN BASED ON THE DECISIONS.	•
STEP 3. IDENTIFY INPUTS TO THE DECISION	
IDENTIFY THE INFORMATIONAL INPUTS NEEDED TO RESOLVE A DECISION.	•
IDENTIFY THE SOURCES FOR EACH INFORMATIONAL INPUT AND LIST THE INPUTS THAT ARE OBTAINED THROUGH ENVIRONMENTAL MEASUREMENTS.	•
BASIS FOR THE CONTAMINANT SPECIFIC ACTION LEVELS.	The site specific screening levels for airr are based on ASTDR criteria (Table 4-3)
IDENTIFY POTENTIAL SAMPLING TECHNIQUES AND APPROPRIATE ANALYTICAL METHODS.	

STEP 4. DEFINE THE BOUNDARIES OF THE STUDY	
DEFINE THE DOMAIN OR GEOGRAPHIC AREA WITHIN WHICH ALL DECISIONS MUST APPLY.	The boundaries for the Deepwater Horizon Incident SMART air sampling are shown on Figures 3-1 and 3-2.
SPECIFY THE CHARACTERISTICS THAT DEFINE THE POPULATION OF INTEREST.	
DEFINE THE SCALE OF DECISION MAKING.	The scale of decision will be for the site activities occurring at the time of the sample collection.
DETERMINE THE TIME FRAME TO WHICH THE DATA APPLY.	.
DETERMINE WHEN TO COLLECT DATA.	
IDENTIFY PRACTICAL CONSTRAINTS ON DATA COLLECTION.	• Inclement weather. • Access not attainable.
STEP 5. DEVELOP A DECISION RULE	
SPECIFY THE PARAMETER THAT CHARACTERIZES THE POPULATION OF INTEREST.	The sample concentrations at each sample location will be compared to the screening levels presented in Table 4-3 and Appendix G.

SPECIFY THE ACTION LEVEL FOR THE DECISION.	The site specific screening levels for water are based on (Table 4- x)
DEVELOP A DECISION RULE.	

STEP 6. SPECIFY LIMITS ON DECISION ERRORS	
DETERMINE THE POSSIBLE RANGE OF THE PARAMETER OF INTEREST.	
DEFINE BOTH TYPES OF DECISION ERRORS AND IDENTIFY THE POTENTIAL CONSEQUENCES OF EACH.	Type I Error Type II Error:
ESTABLISH THE TRUE STATE OF NATURE FOR EACH DECISION RULE.	The true state of nature when the air is decided to be below the screening levels when in fact, it is not below the screening levels, is that the water does need remedial action. The true state of nature when the air is decided to be above the ASTDR criteriawhen in fact, it is not above the screening criteria, is that the water does not need remedial action.
DEFINE THE TRUE STATE OF NATURE FOR THE MORE SEVERE DECISION ERROR AS THE BASELINE CONDITION OR THE NULL HYPOTHESIS (H_o) AND DEFINE THE TRUE STATE FOR THE LESS SEVERE DECISION ERROR AS THE ALTERNATIVE HYPOTHESIS (H_a).	Ho: Ha:
ASSIGN THE TERMS "FALSE POSITIVE" AND "FALSE NEGATIVE" TO THE PROPER DECISION ERRORS.	• False Positive Error = Type I • False Negative Error = Type II
ASSIGN PROBABILITY VALUES TO POINTS ABOVE AND BELOW THE ACTION LEVEL THAT REFLECT THE ACCEPTABLE PROBABILITY FOR THE OCCURRENCES OF DECISION ERRORS.	The assignment of probability values is not applicable to these DQOs because a nonprobablistic (judgment-based) process has been specified.

STEP 7. OPTIMIZE THE DESIGN	
REVIEW THE DQOs.	
DEVELOP GENERAL SAMPLING AND ANALYSIS DESIGN.	